



TITLE:

PERSONAL

AUTHOR(S):

CITATION:

PERSONAL. ICR Annual Report 2001, 7: 88-91

ISSUE DATE:

2001-03

URL:

<http://hdl.handle.net/2433/65254>

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Early Retirement

Professor Sho Takahashi (Biopolymer Structure, Molecular Biology and Information)



On the 31st of March, 1999, Dr. Sho Takahashi retired from Kyoto University after 29 years of service to the University and, on the 6th of July, 1999, was honored with the title of Professor Emeritus of Kyoto University.

Dr. Takahashi was born in Hyogo on the 22nd of July, 1936. After graduation from Department of Chemistry, Faculty of Science, Nagoya University in 1958, he continued his studies as a graduate student on the structural determination of physiologically active natural products. In 1963 he finished the course and was appointed an instructor of the Department of Physics, Faculty of Science, Nagoya University. He was granted a doctoral degree from Nagoya University in 1963 for his study on the determination of the structure of tetrodotoxin. On a leave of absence in the year 1967 to 1970, he stayed at the Laboratory of Chemistry, National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, and studied with Dr. Louis A. Cohen a reductive conversion of protein N-terminal pyroglutamate into prolyl residue and a correlation between stretching vibration frequencies of ester carbonyls and the component alcohol pK_a .

In 1970, he moved to the laboratory that was directed by Professor Tatsuo Ooi, Institute of Chemical Research, Kyoto University, and was promoted to Associate Professor in 1972. In 1989, he was appointed full Professor of Kyoto University and directed the Laboratory of Physical Chemistry of Enzyme (presently Biopolymer Structure, Division of Molecular Biology and Information). At the Graduate School of Science, Kyoto University, he gave lectures on biopolymers and physical

chemistry of protein, and supervised the dissertation works of graduate students.

During the past three decades, although his research interest comprised a wide variety of subjects, the approach of the way was a consistent use of synthetic peptides as a tool. Secondary structures are fundamental structural units in protein structure and the stability of secondary structure mostly determines protein structure. Synthetic polypeptides had been considered a straightforward model system to the study of protein secondary structures, but the lack of adequate synthetic methods limited the use to polypeptides having random amino acid sequences. Dr. Takahashi's works on regular copolypeptides having definite amino acid sequence pioneered the way to the synthesis of the required polymers and their application to the study. Block polypeptides, which were synthesized by a sophisticated method with fragment coupling on a solid-phase support, enabled him to study the local stability resided inside an α -helix. In the last ten years his interest was focused on interaction between peptides and biomembranes and discovered peptide-induced membrane fusion. Necessary conditions of peptide to trigger the fusion have been extensively studied.

He also developed practically useful analytical methods for biochemistry: such as a ninhydrin reagent for an amino acid analyzer and fluorescent rotors, which are now commercially available.

His contribution to the Institute through both academic and administrative activities is hereby gratefully acknowledged.

Early Retirement

Professor Takeaki Miyamoto (Polymeric Materials, Organic Materials Chemistry)



On the 31st of March, 2000, Dr. Takeaki Miyamoto retired from Kyoto University, one year earlier than expected, and moved to his new assignment, the Principal of Matsue National College of Technology. He had served the University for 31 years and was honored with the title of Professor Emeritus of Kyoto University in April, 2000.

Dr. Miyamoto was born in Manchuria, China on the 3rd of April, 1937. After graduation from the Department of Fiber Chemistry, Faculty of Engineering, Kyoto University in 1962, he continued his studies on polymer chemistry as a graduate student for two years. After 4 years of service to Nittobo Co. Ltd., he returned to the University to be appointed Instructor of the Laboratory of Polymer Properties headed by Professor H. Inagaki (present Professor Emeritus), at the Institute for Chemical Research, Kyoto University in 1968, where he was promoted to Associate Professor in 1976 and to full Professor in 1988, a position he held until retirement. In the meantime, he was granted in 1967 a doctoral degree from the Faculty of Engineering, Kyoto University for his studies on "Unperturbed Dimensions, Conformations & Steric Isomerisms of Polymer Chains". On leave from the University, he made a stay in Freiburg University, (West) Germany in the years 1967 and 1968 to work on functional polymers in collaboration with Professor H.-J. Cantow. From the 1st of April, 1994 to the 31st of March, 1996, he was appointed Director of the Institute and made quite a few important contributions not only to the Institute but also to the University.

Dr. Miyamoto devoted himself to the Society of Fiber Science and Technology, Japan as President for the years 1995 and 1996, and to the Cellulose Society as President for the years 1997 and 1998. In 2000, he was awarded by each of these Societies for his distinguished services to them. He made no less contributions to the promotion of

international collaboration in polymer science, in particular with Germany and China. He was chair or a member of organizing committee in a number of international scientific conferences/symposiums.

During the past 40 years, Dr. Miyamoto's research interest encompassed a wide array of the sciences of functional polymers and fiber materials. His scientific life started with the synthesis and solution-property study of block copolymers and the characterization of polymers by thin layer chromatography and various spectroscopies. With a number of achievements in these fundamental fields of polymer science, his interest was directed to polymer materials in general, above all, to naturally occurring polymers. He established a method to characterize the second-order structure of wool keratin by circular dichroic spectroscopy, with which he succeeded in disclosing details of the α - β transition of the component protein. He was the first to perform a detailed study on the interactions between wool keratin and metal ions by means of gel chromatography. This fundamental work led him to develop waste wool-based new materials like a heavy-metal adsorbent and a cosmetic substrate. He is also known as a distinguished cellulose scientist, in particular for his studies on the characterization of the substituent distributions along the chain in cellulose derivatives, and the effects of these distributions on their physical and physicochemical properties. He also developed systematic work to elucidate the relationships between the molecular structure and liquid crystallinity in cellulose derivatives. For his brilliant achievements, he was awarded in 1983 the Prize of Fiber Science and Technology, Japan.

With his extraordinary ability of planning, vitality, and characters to attract people, he will continue to make a great job in his new position, too.

Retirement

Professor Takashi Kobayashi (Crystal Information Analysis, States and Structure)



On the 31st of March 2001, Dr. Takashi Kobayashi retired from Kyoto University after his 35 years' service at Kyoto University. The title of Emeritus Professor was granted to him by the University on the following day.

After graduating from the Faculty of Science, Kyoto University, with his major in chemistry in March 1962, he started his study on powdery organic crystals under the supervision of the late Professor Eiji Suito. He received a doctor of science degree from Kyoto University for his study on phthalocyanine complexes using infrared spectroscopy in 1970.

Dr. Kobayashi was appointed an Instructor at the Laboratory of Powder Chemistry, Institute for Chemical Research, Kyoto University in 1966 and an associate professor in 1984. In these years, he made a sabbatical at the University of Münster, Germany, as an Alexander von Humboldt Stipendiat and worked on electron radiation damage in co-operation with Professor Ludwig Reimer for two years. He was promoted to a full professor of the Institute in 1988 to direct the Laboratory of Powder Chemistry (the present name, Crystal Information Analysis). During these years, he made many distinguished studies on organic crystals, especially by the high resolution electron microscopy, the fast electron energy-loss spectroscopy and the energy filtered imaging. In particular, the lattice defects in organic crystals, polymorphic and pseudomorphic structures at interfaces and the epitaxy of organic molecules were analyzed in detail by the electron microscopic methods. He established multi-beam imag-

ing in high-resolution electron microscopy. So as to realize an 0.1 nm resolution, he has made many contributions to the foundation of the 1000kV high resolution electron spectromicroscope having a twin-tank system with the Emeritus Professor Natsu Uyeda. For his excellent achievements, the Japanese Society for Electron Microscopy awarded him twice the prizes in 1988 and in 1998 on his studies of lattice defects in organic crystals by direct molecular imaging and of electron energy-loss spectroscopy, respectively.

Dr. Kobayashi contributed toward various scientific meetings and international congresses as an executive committee member. He served as a member of the board of directors in the Japanese Society for Electron Microscopy. He also served as a member of the editorial board in some international scientific journals; *Journal of Porphyrins and Phthalocyanines*, *Journal of Electron Microscopy*, and *Advances in Polymer Science*.

Dr. Kobayashi has given lectures on crystal chemistry since 1984 at the Graduate School of Science, Kyoto University and was charged with supervising dissertation works of many graduate students. He has been a visiting lecturer at several universities such as Tokyo Institute of Technology and Okayama University.

Because of his sincere, thoughtful and warm personality, Dr. Kobayashi wins the respect of all who come in contact with him. His contribution to the Institute through both academic and administrative activities is gratefully acknowledged.

Award

Professor Teruya Shinjo (Artificial Lattice Alloys, Solid State Chemistry)



Dr. Teruya Shinjo, Professor of Kyoto University, was awarded a Purple Ribbon Medal (Shijuhosho) in November 2000.

Dr. Teruya Shinjo was born in Kyoto Prefecture on August 18, 1938. He graduated from Faculty of Science, Kyoto University in 1961. He studied the magnetic properties of iron oxide particles by Mössbauer spectroscopy in the Graduate School of Science, Kyoto University under the supervision of Professor H. Takaki. He finished the Doctor Course of Chemistry and received the Doctor Degree of Science in 1966.

He started his academic carrier as an instructor of Institute for Chemical Research, Kyoto University in 1966 with the late Professor T. Takada. In 1976, he was promoted to an associate professor and since 1982, he has directed the Laboratory of Solid State Chemistry, Institute for Chemical Research as a full professor. During 1996-1998, he served as the Director of Institute for Chemical Research. At the Graduate School of Science, Kyoto University, he gave lectures on the properties of magnetic materials and supervised the dissertation works of many graduate students.

During his academic carrier, Prof. Shinjo has extensively investigated the properties of magnetic thin films. The keywords of his investigation may be “Mössbauer spectroscopy” and “giant magnetoresistance effect”. He investigated the surface/interface magnetic properties of ferromagnetic metals such as iron and cobalt with ^{57}Co and ^{57}Fe Mössbauer probes. These studies are now recognized as pioneering works in surface/interface magne-

tism. The studies on surface/interface magnetism were developed to the production of metallic multilayer films with artificial stacking structures of nanometer scale. The artificially structured metallic multilayers are novel alloy systems which may potentially have various useful properties. He discovered a non-coupling type giant magnetoresistance (GMR) effect in NiFe/Cu/Co/Cu multilayer systems. His discovery stimulated the development of read head devices of magnetic recordings. Nowadays the GMR heads are widely used in the hard disks of computers. Recently he started new researches of nano-scale magnetism. The GMR effect is utilized to detect the magnetization reversal of narrow magnetic wires. In the sub-micron-size magnetic dots, he successfully observed the turned-up magnetization spot in the center of the magnetic vortex structure by magnetic force microscope. Such a magnetic structure was theoretically predicted long time ago, but has never been observed by experiments. For his long-term studies on the properties of magnetic films including the discovery of the non-coupling type GMR effect, he was awarded the Prize of the Magnetic Society of Japan in 1991 and 1998, and the Prize of the Japan Society of the Applied Physics in 1993.

It is worth referring to his international activities in the academic society. He is one of the Japanese representatives of International Board on the Application of the Mössbauer Effect for many years, and an international committee member of the International Colloquium on Magnetic Films and Surfaces and served as the chair.

Awards

Yukio Sugiura (Professor)
Bioactive Chemistry, Bioorganic Chemistry

**The Pharmaceutical Society of Japan
Award**

“Molecular Mechanism for DNA Recognition and Functional Expression of Bioactive Molecules”

28 March 2000

Tadashi Inoue (Instructor)
Molecular Rheology, Fundamental Material Properties

SRJ Research Award for 1999

“Viscoelasticity and Birefringence of Amorphous Polymers in the Glass Transition Zone”

The Society of Rheology, Japan
18, May, 2000

Ko Mibu (Associate Professor)
Solid State Chemistry, Quantum Spin Fluids

The ICR Award for Young Scientists

“Control of Magnetic Structures using Metallic Multilayers”

Shinpei Yamamoto (JSPS Research Fellow)
Polymeric Materials, Organic Materials Chemistry

The ICR Award for Young Scientists

“Structures and Properties of High-Density Polymer Brushes”